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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/477,984	06/07/95	COWGILL	C 1087.001
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HM11/0317

EXAMINER

GUPTA, A

ART UNIT

PAPER NUMBER

1654

DATE MAILED:

03/17/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks



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This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

DATE MAILED:

- ☒ This application has been examined    ☒ Responsive to communication filed on 12-15-97    ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 MONTHS from the date of this letter.  
Failure to respond within the time period will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENTS ARE PART OF THIS ACTION:

- |   |  |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948.                   |
| 3. <input checked="" type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449       | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____  |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-<sup>64</sup>~~63~~ are pending in the application.  
Of the above claims,        are withdrawn from consideration.
2. ☒ Claims 19-46 have been cancelled.
3. ☐ Claims        are allowed.
4. ☒ Claims 1-18 and 47-<sup>64</sup>~~63~~ are rejected.
5. ☐ Claims        are objected to.
6. ☐ Claims        are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on       . Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on        has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on        has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under 35 USC 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no.       ; filed on       .
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. Claims 1-12, 14, and 16-18 rejected under 35 U.S.C. 102(b) as being anticipated by Builder et al.

In view of applicants arguments, this rejection is withdrawn.

***Claim Rejections - 35 USC § 103***

2. Claims 1-18 rejected under 35 U.S.C. 103(a) as being unpatentable over Builder et al..

In view of applicants arguments, this rejection is hereby withdrawn.

**New Grounds For Rejection**

3. Claims 47-62 and 63 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 1-17. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 112***

4. Claim 58 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim is drawn to the use of a C3 silica-derivatized resin for the reverse phase high performance liquid chromatography. However, the specification does not provide adequate support to use such a resin. The specification, on page 20, teach that the resin utilized for the purification step contain C4-C10 functionality. The examples similarly do not disclose the use of a C3 resin since the example utilize a C8 resin (see example II, section C). Accordingly, the specification lacks proper support for the use of C3 silica-derivatized resin for the reverse phase high performance liquid step.

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***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claims 1-2, 5-11, 13-14, 17, 47-48, 51-57, 59-60 and 63-64 rejected under 35 U.S.C. 102(e) as being anticipated by Brierley et al.

The claims are drawn to a method of purifying IGF-1.

The reference teach a method of purification of IGF that comprises a cation exchange step (sulfylpropylated matrix), followed by refolding of the protein with a buffer, followed hydrophobic chromatography (butyl substituted, polymethacrylate matrix), followed by a second cation exchange step (sulfylpropylated matrix) and finally purified by reverse phase chromatography (see claims 1-21). The refolding buffer utilized by the reference comprises 2M urea, 1,5 mM sodium chloride, 15% ethanol, 5 mM sodium borate, .2mM DTT (see col. 6, lines 60-63). The IGF-1 is of a recombinant source and specifically secreted from transformed yeast cells. The IGF-1 is produced in Pichia Pastoris strain (see col. 4, lines 21-40).

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35

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U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 and 47-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brierley et al. in view of Holtz et al. and Bussineau et al.

The claims are drawn to a method of purifying IGF-1.

Brierley et al. has been discussed supra. The difference between the prior art and the instant application is that the reference does not teach the use of yeast cell, *S. cerevisiae*, for the recombinant production of IGF and the purification of IGF II.

However, Bussineau et al. teach a method of recombinant production of IGF utilizing *S.cerevisiae* (see example 1). The reference further teach that at the end of the fermentation period, an alkaline shock treatment, wherein an alkali is added to adjust the final pH of the culture medium to the range of 8-11, is conducted. This results in a higher yield of protein from the recombinant production in yeast cells (see page 3-4). Therefore, it would have been obvious to one of ordinary skill in the art to use *S. cerevisiae* as the yeast cells and further use an alkaline shock treatment, as outlined in Bussineau et al, to obtain a higher yield in protein.

As to purification of IGF II, as applicant's specification recognizes, the art has recognized the use of yeast cells such as *P. Pastoris* and *S.cerevisiae* for the production of IGFs, including IGF II. Therefore, since the source of protein is the same and since IGF II is similar in chemistry to IGF I, it would have been obvious to one of ordinary skill in the art that the method outlined in Brierley et al. would be applicable to IGF II.

5. It should be noted that the reference of Bussineau et al., although does not have a publication before the filing date of the instant application, it claims priority to a US application and thus would qualify under 102(g).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to

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Anish Gupta whose telephone number is (703) 308-4001.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang, can normally be reached on (703) 308-0254. The fax phone number of this group is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Anish Gupta

*C. Tsang*  
CECILIA J. TSANG  
PATENT EXAMINER  
1367